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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,387	01/22/2002	Jeffrey C. Burnham	38934.0008	7016

25227 7590 04/01/2004  
MORRISON & FOERSTER LLP  
1650 TYSONS BOULEVARD  
SUITE 300  
MCLEAN, VA 22102

EXAMINER

CLARDY, S .

ART UNIT	PAPER NUMBER
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1616

DATE MAILED: 04/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/051,387	<b>Applicant(s)</b> BURNHAM, JEFFREY C.	
	<b>Examiner</b> S. Mark Clardy	<b>Art Unit</b> 1616	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-69 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-40 is/are allowed.
- 6) ☒ Claim(s) 41-60, 65-69 is/are rejected.
- 7) ☒ Claim(s) 61-64 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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Claims 1-69 are pending in this application which claims the benefit under 35 USC 119(e) of US Provisional Applications No. 60/272,469, filed March 2, 2001, and 60/262,631, filed January 22, 2001. International application PCT/US02/01511 claims priority to the same provisional applications.

Applicant's independent claims are drawn to:

1. Biosolid granules comprising multiple layers of differing composition
38. A method of making the granules.
41. A biosolid containing granule with a core and at least one layer.

The compositions have delayed release characteristics. The layer(s) comprise materials such as:

- a. inorganic compounds, polymeric materials, organic materials, fertilizers, polysaccharides, etc. (claim 5, 45),
- b. polymeric coating materials (claim 14, 51),
- c. micronutrients (claims 15-20, 52-57),
- d. microorganisms (claims 21, 58) which are useful for bioremediation (claims 22, 59),
- e. toxins (claim 27, 60) such as pesticides, herbicides, insecticides (method claim 32, 69);

Also claimed are: methods of bioremediation (claims 23-26, 61-67); methods of fertilization or pesticidal use (claims 28-32, 34, 68, 69); and methods of non-specific delayed release (claims 33, 35-37).

Note that in claim 50, the term "encapsulating" should read -- encapsulates --.

Claims 1-40 are allowed.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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Claims 41, 42, 44-46, 50-54, 58-60, and 65-69 are again rejected under 35 U.S.C. 102(a), (b), and (e) as being anticipated by Varshovi (US 2002/0053229).

Varshovi, again, teaches organic based dry pelletized or granulated (para 25) fertilizer compositions comprising an organic base material such as biosolids or activated sludge, or other fertilizer materials such as compost, manures, meal derived from blood, feathers, cottonseed, kelp, or fish (16), to which may be added additional components such as beneficial or herbicidal microorganisms (17-19), plant growth regulators and pesticides (20), plant nutrients (page 3), including macronutrients (NPK: 34) and micronutrients such as zinc (12, 35). The additional materials may be added to the granular compositions by mixing or coating, i.e., spraying onto the granular substrate (23-25). The size of the solid material ranges from 20 to 200 mesh (i.e., 0.075 to 0.85 mm: para 38). The core material may also be encapsulated:

“[s]olid form fertilizer particles can be encapsulated in water soluble coatings (e.g., dyed or undyed gelatin spheres or capsules) extended release coatings, or by microencapsulation to a free flowing powder using one or more of gelatin, polyvinyl alcohol, ethylcellulose, cellulose acetate phthalate, or styrene maleic anhydride.” (38).

Applicant's amendment has not amended claim 41 which simply recites “a granule comprising at least one layer with a core wherein said granule contains biosolid material.” All aspects of this claim, and the dependent claims listed above, are met within the disclosure of Varshovi et al.

Claims 41-60 and 65-69 are again rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Varshovi, Lipert (US 5,862,610), Waldman et al (US 6,284,278, equivalent PCT: WO 98/56735), Diping et al (US 5,849,060), Cunningham (US 5,340,376), and Burger et al (DE 41 27 459).

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Varshovi has been discussed above. Note that Varshovi teaches the equivalence of biosolids and other conventional fertilizer materials in solid organically based fertilizer compositions (para 16, discussed above).

Lipert, again, teaches a method of coating dry pellets made of waste biosolids with additional waste biosolids. In the reprocessing method, rejected pellets which fail to meet density and size requirements are returned for coating with additional biosolid material to produce acceptable pellets (abstract, columns 1-2). The pellets are to be reprocessed to a size in the range of 3-4 mm, with a dryness of about 95% (col 2, lines 63-65), and are useful directly as a general slow release nitrogen fertilizer, or for combination with other fertilizer materials (col 1, lines 17-20).

Waldman et al, again, teach controlled release compositions comprising water soluble granulated chemicals such as fertilizers, salts, pesticides which are coated in a thermoplastic biodegradable and inert polymer composition (abstract).

Diping et al, again, teach controlled release fertilizer comprising a water-soluble fertilizer nucleus surrounded with plant nutrient coating layers with limited solubility (abstract).

Cunningham, again, teaches controlled-release microbe nutrients, which are the same as those which are useful as plant nutrients (columns 5-6), which are surrounded with a controlled-release coating (columns 6-7). The compositions are especially useful in providing nutrients to bioremediation microbes (columns 7-8).

Burger et al, again, teach fertilizer granules which are coated in multiple polymeric layers which control the release of the fertilizer materials.

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One of ordinary skill in the art would be motivated to combine these references because they disclose granular compositions for providing controlled release of agricultural materials.

Thus it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have made granular materials comprising a core material (inorganic compounds, fertilizers, pesticides, micronutrients, or biosolids), surrounded by at least one layer that provides a controlled release of the coated material. Further, Lipert and Varshovi specifically teach that biosolid materials are useful in making such granular fertilizer compositions. Again, Varshovi teaches the equivalence of such core materials.

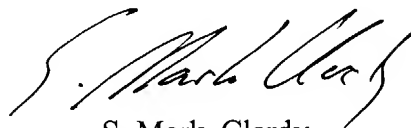
Claims 61-64 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. No prior art is noted in which biosolid containing granular material has been used in bioremediation methods.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Mark Clardy whose telephone number is 571-272-0611. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "S. Mark Clardy", is positioned above the printed name and title.

S. Mark Clardy  
Primary Examiner  
Art Unit 1616

March 30, 2004